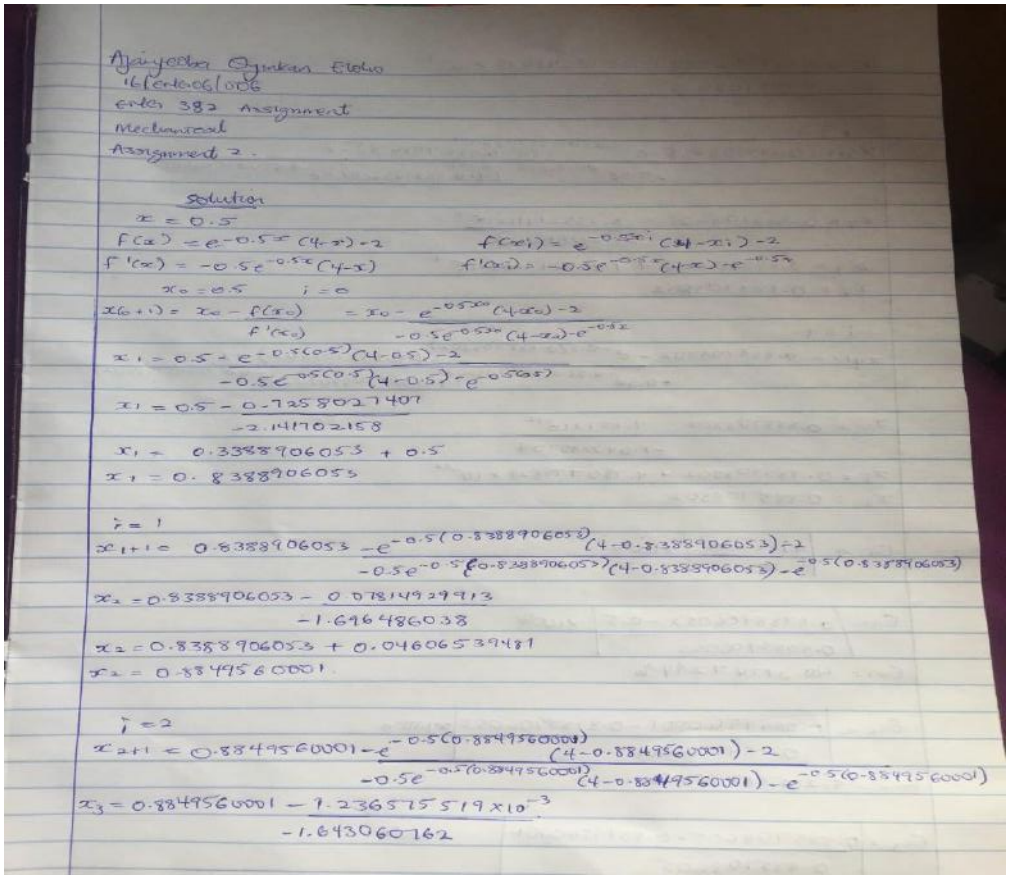
AJAIYEOBA OYINKAN ELOHO

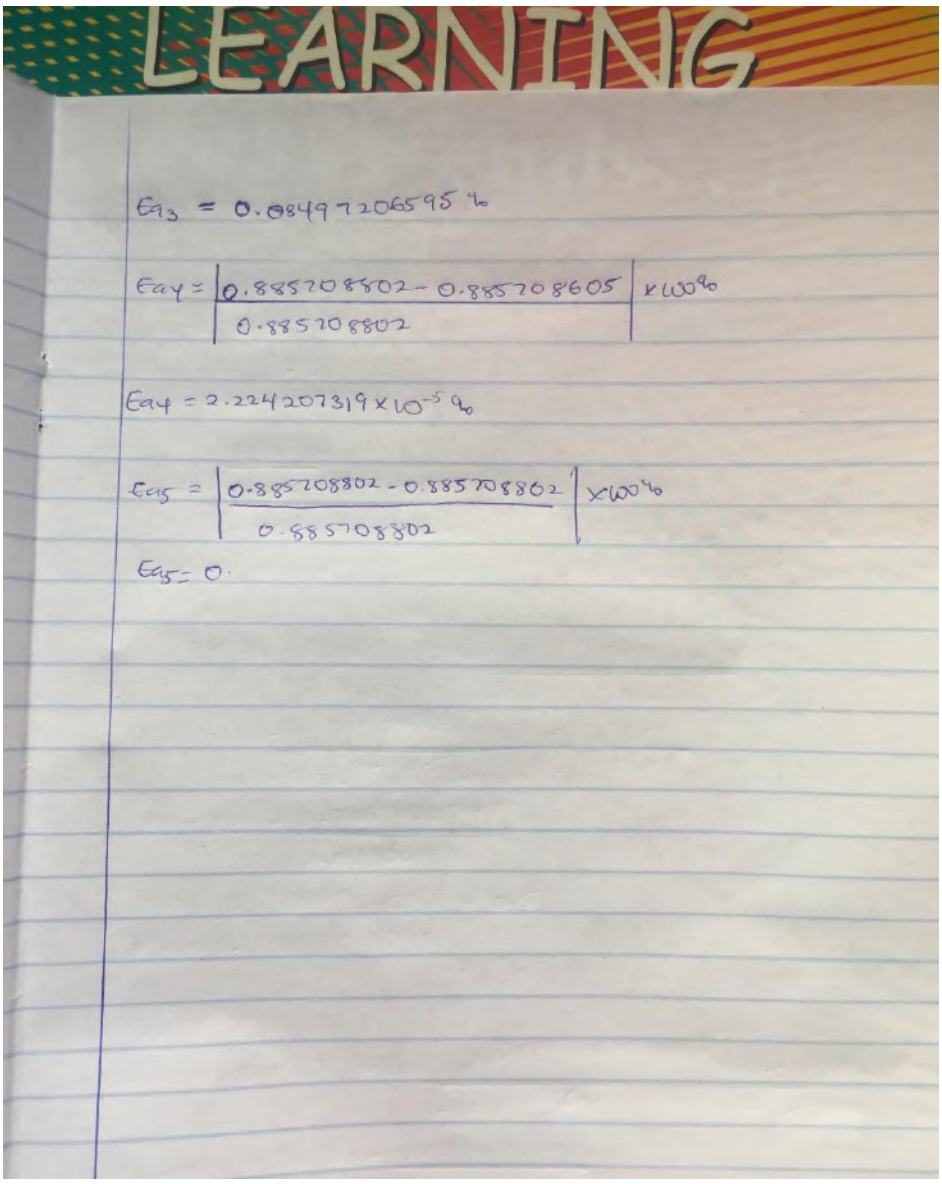
16/ENG06/006

MECHANICAL

ENG 382 ASSIGNMENT

ASSIGNMENT 2





MATLAB CODE

```
function[x1,err,relerr]=matass2(x0,imax,tol,iter,f,fprime)
x0=0.5;
imax=100;
tol=0.00000000005;
iter=1;
f=@ (x)exp (-0.5*x)*(4-x)-2;
fprime=@(x)-0.5*exp(-0.5*x)*(4-x)-exp(-0.5*x);
for i=1:imax
    x1=x0-feval(f,x0) /feval(fprime,x0)
    err=abs(x1-x0);relerr=abs(x1-x0)/x1
    fprintf('%2.0f %10.10f % 10.10f % 10.10f %10.10f\n',
iter,x0,x1,err,relerr)
    x0=x1,iter=1+iter;
    if err<=tol,
        break
```

```
    end
end
```

matass2

x1 =

    0.83889

relerr =

    0.40397

 1 0.5000000000 0.8388906060 0.3388906060 0.4039747300

x0 =

    0.83889

x1 =

    0.88496

relerr =

    0.052054

2 0.8388906060 0.8849560003 0.0460653942 0.0520538809

x0 =

0.88496

x1 =

0.88571

relerr =

0.00084972

3 0.8849560003 0.8857086050 0.0007526047 0.0008497204

x0 =

0.88571

x1 =

0.88571

relerr =

2.2247e-07

4 0.8857086050 0.8857088020 0.0000001970 0.0000002225

x0 =

0.88571

x1 =

0.88571

relerr =

1.5293e-14

5 0.8857088020 0.8857088020 0.0000000000 0.0000000000

x0 =

0.88571

ans =

```
    0.88571

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